Self-Adaptive Advanced Wound Dressing Clinical Results

By Vicki Fischenich, GNP-BC and Randall Wolcott, MD

Case 1: Chronic Lower Extremity Venous Stasis Ulcer

Patient

A 53-year-old male presented with a draining lateral venous stasis ulcer on his left lower leg that had been present for several months. Patient is a heavy smoker (one pack a day) with a history of untreated hypertension, arterial compromise, and refused revascularization (ankle/brachial index: 0.82).

Wound Description

Upon presentation to the clinic, the venous stasis ulcer appeared weepy and stalled in the inflammation phase. Healing was further complicated by frequent recurrence of fungal/yeast infection on the peri-wound skin, which caused constant pruritus and inflammation. Patient complained of sleep loss due to itching and discomfort throughout the day. Initial goals in this case were to reduce wound drainage and edema.

Figure 1

Day 0: Chronic venous leg ulcer with edematous raised bed after four months of advanced wound care and prior to application of self-adaptive advanced wound dressings.

Initial Wound Treatment

In addition to triamcinolone, anti-fungal ointments, and topical antibiotics, a variety of dressings were applied to the wound during the first four months of treatment, including foams, alginates, silver alginates, and polymeric membrane dressings. Unfortunately, the quantity and consistency of drainage from the wound did not change with application of these dressings. After four months of advanced wound care, the ulcer remained weepy and hypergranulated with raised wound edges. Condition of the peri-wound skin was bright red, erythematous, edematous, and with scaly dry drainage adding to the pruritus (Figure 1).

Application of Self-Adaptive Advanced Wound Dressings

Prior to the first application of self-adaptive advanced wound dressings and following debridement, the ulcer measured 4.0 x 4.0 x 0.5 cm. Topical antibiotics and anti-fungal ointment were applied. The self-adaptive wound dressing was placed over the ulcer, overlapping 2 to 3 cm onto intact skin, and secured with circumferential gauze wrap.

Wound Progression with Self-Adaptive Dressings

Two weeks following initial application of self-adaptive wound dressings, drainage was noticeably reduced, the peri-wound erythema was resolved, and the wound was granulating normally with only a small, slightly raised area (Figure 2). The self-adaptive dressing prevented transfer of exudate to the peri-wound skin, ending prolonged skin irritation and itching after only one week of use.

After four weeks of the dressings, the wound bed was completely level with the periwound skin and re-epithelializing normally. The wound measured only 0.5 x 0.25 x 0.25 cm with no periwound edema

(Figure 3). No dressing adjustment or cutting was required during course of wound healing. After two months, the wound was completely closed and re-epithelialized (Figure 4), and dressings were discontinued.

User Experience

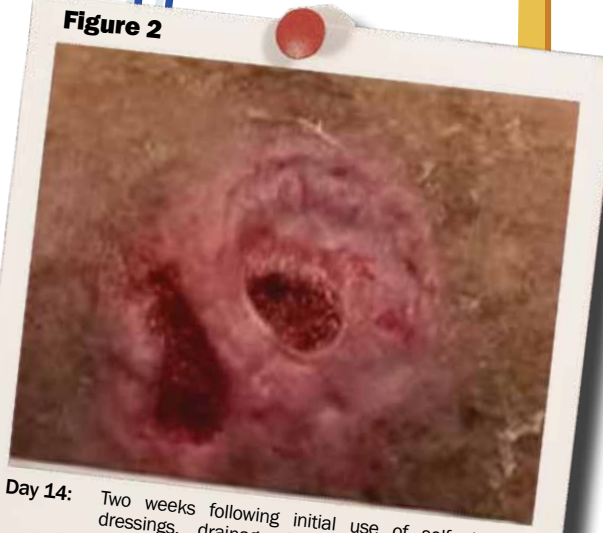
The patient was very satisfied with the Self-Adaptive Wound Dressings, particularly with respect to painless, non-adherent dressing removal and the rapid rate of erythema resolution and wound closure. Patient reported no dressing leakage or fluid strike-through. Itchiness stopped within one week of application, and the patient was relieved to finally sleep through the night. His wound that had been draining for 4 months was nearly closed within 1 month of Self-Adaptive Dressing use, allowing him to return to normal activities.

Clinical Outcomes/Conclusion

In this case, Self-Adaptive Dressings appeared to contain all the properties needed to reverse the impediments in ulcer healing that were evident during the previous four months, including edema, uncontrolled drainage, and moisture imbalances. Compared to all previous dressings used in this chronic ulcer, the Self-Adaptive Dressing was the only dressing that facilitated effective and efficient wound closure.

Drainage was controlled, locked in and reduced with this dressing, resulting in edema reduction and optimal moisture balance throughout the wound and peri-wound skin. The dressing appeared to absorb exudate from the central area of the draining wound while maintaining moist wound edges, and to provide a moist healing environment during the low-/non-exuding final stages of wound healing. The final cosmetic appearance of the healed wound was excellent.

Figure 2



Day 14: Two weeks following initial use of self-adaptive dressings, drainage is considerably decreased and peri-wound erythema is completely resolved. Signs of inflammation are no longer present and the wound is nearly level with the peri-wound skin.

Figure 3

Day 30: After one month of management with self-adaptive wound dressings, wound size was reduced to 0.5 x 0.25 x 0.25 cm with no edema or drainage. The wound appeared optimally moist and mostly re-epithelialized.

Figure 4

Day 60: Venous stasis ulcer is completely closed with excellent aesthetic result after two months of self-adaptive dressings.

From a clinician's perspective, Self-Adaptive Advanced Wound Dressings greatly simplify the tedious process of choosing appropriate wound care dressings, because this one dressing type is suited for the entire healing continuum and does not need to be switched according to changing wound conditions. The dressing was effective throughout all conditions and sizes of this wound.

Reference
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Case 2: Basal Cell Carcinoma of the Temporal Region

Patient

A 62-year-old male presented with a non-healing soft tissue radionecrosis wound of the left facial and temporal region following severe radiation damage post basal cell carcinoma. Patient's medical history also included hypertension and stage II chronic kidney disease.

Wound Description

Continual drainage from the exposed frontal sinus was contaminating and causing inflammation to the surrounding soft tissue, prolonging wound healing process. Wound healing was further complicated by desiccation of wound edges and non-exudative portions of the wound, as well as formation of necrotic tissue and biofilms.

Initial Wound Treatment

A range of absorbent dressings, including hydrocellular and self-adherent polyurethane foams, were tried in the wound and were unsuccessful in controlling drainage of the sinus fluid and necrotic tissue formation. The wound required weekly debridement to remove necrotic tissue, which was increasing the wound size and traumatizing the wound edges, exposed bone, and the fragile thin tissue layer over the brain. Brain pulsating movement could be observed in the center of the wound. Continual debriding of this fragile area due to drainage deterred the healing process.

Figure 1

Day 0: Chronic soft tissue radionecrosis wound prior to use of self-adaptive dressings is filled with necrotic tissue and contaminated with sinus fluid.

Application of Self-Adaptive Advanced Wound Dressings

Ten weeks after the patient initially presented to our clinic, the wound measured 10.0 x 13.0 x 1.0 cm with exposed bone (Figure 1). Debridement was performed, and a self-adaptive advanced wound dressing was placed on the wound, overlapping 2 to 3 cm onto intact skin, and secured with non-woven cotton tape at the first dressing change. On follow-up visit, additional folded gauze and cotton tape were added over the self-adaptive dressing to ensure wound bed contact with the dressing and aid drainage absorption and biofilm elimination.

Wound Progression with Self-Adaptive Dressings

Two weeks following initial placement of Self-Adaptive Dressings, the wound displayed marked signs of improvement. Drainage was controlled and isolated within the dressing, and healthy pink tissue was present in the wound bed and on wound edges (Figure 2).

Figure 2

Day 14: Two weeks following initial use of Self-Adaptive Wound Dressings, sinus drainage is controlled and pink granulation buds are present in the wound bed.

Exudate containment and maintenance of correct moisture balance throughout the entire wound led to a drastic reduction in sharp debridement and associated trauma to the exposed bone and healing tissues. The layer of tissue covering brain tissue continuously retained its moisture, and appeared strengthened within one month of self-adaptive wound dressing use (Figure 3).

After three months of these dressings, wound size was decreased, sinus fluid remained contained, and granulation buds were present throughout the wound bed (Figure 4).

Figure 3

Day 30: After 1 month's use of self-adaptive dressings, the need for debridement was drastically reduced and the thin tissue over the brain remained optimally moist and granulated.

User Experience

The patient reported increased comfort with the dressing, particularly with respect to painless removal, dressing, and decreased debridement frequency. Other dressings applied prior to the self-adaptive wound dressing leaked drainage into the eye and inner ear, requiring frequent debridement and use of antibiotic eye drops for inflammation and irritation.

leak-free

Figure 4

Day 90: After three months of self-adaptive dressings, wound edges appear healthy, and all dimensions are smaller.

Clinical Outcomes/Conclusion

All areas of this complex, soft tissue radionecrosis wound responded positively underneath the self-adaptive wound dressing throughout the 12-week application period. Improved moisture balance and considerably reduced necrotic tissue and biofilm formation were observed with application of self-adaptive advanced wound dressings as compared to previous dressings used in this wound. The self-adaptive dressing appeared to assist in autolytic debridement, which greatly decreased the need for sharp debridement and allowed the underlying healthy tissue to consistently remain on a positive wound healing trajectory.

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Case 3: Fourth Metatarsal Head Following Amputation

Patient

A 67-year-old male presented with a diabetic wound of the right foot fourth metatarsal head following toe amputation. Patient was a healthy, insulin-dependent diabetic with hypertension.

Wound Description

Diabetic patient with a metatarsal wound had been unsuccessfully treated by a local physician for one month. Patient was admitted to a local hospital for amputation of foot and intravenous antibiotics. Patient sought second opinion from our wound clinic and it was determined that amputation of only the fourth digit was necessary. Three days after amputation, the incision dehisced and the wound began producing copious amounts of drainage. At initial presentation post-dehiscence, wound edges were macerated and erythematous due to the uncontrolled wound drainage.

Application of Self-Adaptive Advanced Wound Dressings

Following debridement, the ulcer measured 3.0 x 1.5 x 1.0 cm with exposed bone (Figure 1). A small piece of self-adaptive advanced wound dressing was cut and placed between the toes and over the wound, overlapping 2 to 3 cm onto intact skin (Figure 2), then secured with gauze wrap. The aim of the dressing was to absorb and reduce wound drainage as well as facilitate recovery of the macerated peri-wound skin.

Wound Progression with Self-Adaptive Dressings

The drainage was well absorbed by the dressing. After one week of self-adaptive dressing application, drainage was reduced and maceration around the wound was decreased (Figure 3). The peri-wound area was healthy and completely recovered at week three (Figure 4).

Figure 1

Day 0: Diabetic wound post amputation and debridement with copious drainage and wound edge maceration.

Figure 2

Day 0: Self-adaptive advanced Wound dressing applied between toes and overlapping onto intact skin.

Figure 3

Day 7: After one week of self-adaptive dressing use, wound edge maceration is resolving due to dressing absorption capabilities. Slight erythema is present at the wound edges.

After six weeks of self-adaptive dressings, edema and erythema were no longer present and the wound appeared optimally moist. The wound was smaller (0.5 x 0.5 x 1.0 cm) and well-granulated, including over previously exposed bone (Figure 5). The wound was completely closed after four months of applying self-adaptive dressings (Figure 6), and the patient was discharged from wound care services.

User Experience

The patient appreciated the ease of application and removal of the self-adaptive dressings, and was encouraged at each dressing change by consistent progress toward closure.

Clinical Outcomes/Conclusion

The diabetic foot ulcer showed steady progression toward closure at each dressing change with use of self-adaptive dressings, and was completely closed at four months. Drainage and edema were decreased and peri-wound maceration was eliminated with this dressing. The self-adaptive advanced wound dressing appears to be a viable, simplified dressing option for diabetic wounds due to its effectiveness over different tissue types and throughout the wound healing continuum.

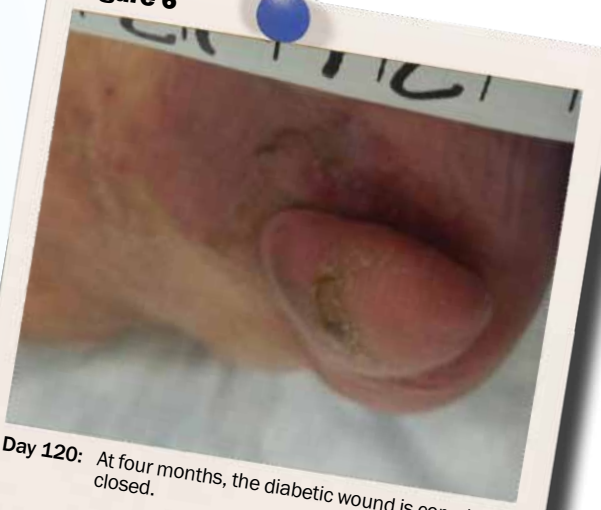
Figure 4

Day 21: Peri-wound is free of maceration and erythema. Wound edges remain moist and begin coming together.

Figure 5

Day 42: The ulcer is well granulated over tissue and bone.

Figure 6



Day 120: At four months, the diabetic wound is completely closed.

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